



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D4294-1
Job Sheet 178116



Part No: D4294-1

Job Qty: 4 ea

Part Name: Fitting



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 5/26/18

Job Tracking No:

Due Date: 5/31/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG REV C IPP REV:A NEW ISSUE 10-11-25 JLM VERIFIED BY:DD IPP REV B: AS PER REV B 11-02-15
JLM VERIFIED BY:DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	4 Ea	5/31/18	5/31/18	0.00	0.00	Start Up Machining-2		
100	Bandsaw	4 pcs	5/31/18	5/31/18	0.00	0.29	Bandsaw1		
110	CNC Vertical Machining	4 pcs	5/31/18	5/31/18	0.46	3.33	HAAS 5 Axis		
120	QC	4 pcs	5/31/18	5/31/18	0.00	0.00	QC2 Machining-2		
130	QC	4 pcs	5/31/18	5/31/18	0.00	0.00	QC8 Machining-2		
140	HandFinish	4 pcs	5/31/18	5/31/18	0.00	0.25	HandFinish1		
145	Powdercoat	4 pcs	5/31/18	5/31/18	0.00	0.28	Powdercoat1		
150	QC	4 pcs	5/31/18	5/31/18	0.00	0.00	QC3		
151	Small Fab	4 pcs	5/31/18	5/31/18	0.00	0.19	Small Fab-6		
152	QC	4 pcs	5/31/18	5/31/18	0.00	0.00	QC5		
180	Packaging	4 pcs	5/31/18	5/31/18	0.00	0.00	Packaging3-2		
190	QC21-SA	4 Ea	5/31/18	5/31/18	0.00	0.00	QC21		

Part Op 100 - Cut Blank to 7.125" ****GRAIN ALONG 4"*****

Descriptions: 110 - 1-Machine per folio FB008

145 - MASK THREADED HOLE

151 - INSTALL HELICOIL AS PER DWG

M/138839

START: 1:35

OUT: 3:20 HOURS: 2:05

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M7075T73B4.000x4.000	7075-T73 Bar 4.0 X 4.0 Grain Direction Along 4" Wide	2.4000 ft (.6 ea)	90-Start up Operation	S080144 - S082158
MS21209F1-10	Heli Coil	4 Ea (1 ea)	151-Small Fab	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	M7075T73B4.000x4.000	2	36	0
151-Small Fab	MS21209F1-10	4	36	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Fitting	0.065Inches $\pm$ 0.010	0.075 0.055		
2	Fitting	0.063Inches $\pm$ 0.010	0.073	Radius	

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as Suspected Unappro ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Cross tube ☐ Small ☐ Water Jet ☐ Eng. Coord. ☐ Packaging Supplier ☐ Engineering Quality ☐ Other ☐					
Date :		Step #:		Description Work Order Deviation MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Positioning Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐ DART AEROSPACE Container No: S082195 Part: D4294-1 Job No: 178116 Serial No/Batch: S082195 Inspector: _____ Exp Date: _____ Instructions: _____ Date: 06/19/18					
OTHER :									

			0.053
3	Fitting	0.305Inches + 0.030 - 0.010	0.335 0.295
4	Fitting	3.170Inches ± 0.030	3.200 3.140
5	Fitting	3.110Inches ± 0.030	3.140 3.080
6	Fitting	0.325Inches ± 0.010	0.335 0.315
7	Fitting	0.780Inches ± 0.010	0.790 0.770
8	Fitting	0.800Inches ± 0.030	0.830 0.770
9	Fitting	1.560Inches ± 0.010	1.570 1.550
10	Fitting	0.500Inches ± 0.010	0.510 0.490
11	Fitting	0.070Inches ± 0.010	0.080 0.060
12	Fitting	0.390Inches ± 0.030	0.420 0.360
13	Fitting	0.500Inches ± 0.010	0.510 0.490
14	Fitting	0.880Inches ± 0.030	0.910 0.850
15	Fitting	3.440Inches ± 0.030	3.470 3.410
16	Fitting	2.450Inches ± 0.010	2.460 2.440
17	Fitting	2.040Inches ± 0.030	2.070 2.010
18	Fitting	1.528Inches ± 0.010	1.538 1.518
19	Fitting	0.300Inches ± 0.010	0.310 0.290
20	Fitting	0.738Inches ± 0.010	0.748 0.728
21	Fitting	0.250Inches ± 0.030	0.280 0.220
22	Fitting	3.375Inches ± 0.010	3.385 3.365
23	Fitting	4.8750Inches ± 0.0100	4.8850 4.8650
24	Fitting	1.670Inches ± 0.010	1.680 1.660
25	Fitting	0.386Inches + 0.006 - 0.001	0.392 0.385
26	Fitting	0.266Inches + 0.006 - 0.001	0.272 0.265
27	Fitting	6.810Inches ± 0.030	6.840 6.780
28	Fitting	6.350Inches ± 0.030	6.380 6.320
29	Fitting	1.460Inches ± 0.030	1.490 1.430
30	Fitting	0.050Inches ± 0.010	0.060 0.040
31	Fitting	3.440Inches ± 0.010	3.450 3.430
32	Fitting	4.968Inches ± 0.010	4.978 4.958
33	Fitting	0.875Inches + 0.010 - 0.001	0.885 0.874
34	Fitting	0.332Inches + 0.020 - 0.010	0.352 0.322

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

35	Fitting	0.750Inches $\pm$ 0.010	0.760 0.740
36	Fitting	6.490Inches $\pm$ 0.030	6.520 6.460
37	Fitting	0.691Inches $\pm$ 0.010	0.701 0.681
38	Fitting	0.640Inches $\pm$ 0.030	0.670 0.610
39	Fitting	0.201Inches + 0.005 - 0.001	0.206 0.200
40	Fitting	0.320Inches $\pm$ 0.010	0.330 0.310
41	Fitting	100Degrees $\pm$ 0	100 100
42	Fitting	0.764Inches $\pm$ 0.010	0.774 0.754
43	Fitting	0.381Inches + 0.000 - 0.001	0.381 0.380
44	Fitting	1.405Inches $\pm$ 0.010	1.415 1.395
45	Fitting	1.125Inches $\pm$ 0.010	1.135 1.115

Plex 5/28/18 7:27 AM Dart.lajeunesse.marie

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval 	
Description Work Order Deviation		Disposition			
				Completed By 	
				Lead hand / Supervisor Approval Verification 	
				QC / QA Coordinator Approval 	

Root Cause	FAULT CATEGORY				
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

DART AEROSPACE LTD		Work Order: 178 116
Description: Fitting		Part Number: D4294-1
Inspection Dwg: D4294	Rev: C	Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.065	+/-0.010	.064	✓		SLIO	vein
R0.063	+/-0.010	.063	✓		Rad	gauge
0.305	+0.030/-0.010	.313	✓		SLIO	vein
3.17	+/-0.030	3.177	✓			
3.11	+/-0.030	3.115	✓			
0.325	+/-0.010	.325	✓			
0.780	+/-0.010	.780	✓			
0.80	+/-0.030	.792	✓			
1.560	+/-0.010	1.563	✓			
0.500	+/-0.010	.496	✓			
0.070	+/-0.010	.070	✓			
0.39	+/-0.030	.395	✓			
0.500	+/-0.010	.499	✓			
0.88	+/-0.030	.882	✓			
3.44	+/-0.030	3.446	✓			
2.450	+/-0.010	2.450	✓			
2.04	+/-0.030	2.040	✓			
1.528	+/-0.010	1.530	✓			
0.300	+/-0.010	.300	✓			
0.738	+/-0.010	.737	✓			
0.25	+/-0.030	.250	✓			
3.375	+/-0.010	3.376	✓			
4.875	+/-0.010	4.876	✓			
1.670	+/-0.010	1.671	✓			
Ø0.386	+0.006/-0.001	.385	✓			
Ø0.266	+0.006/-0.001	.266	✓			
6.81	+/-0.030	6.812	✓			
6.35	+/-0.030	6.345	✓			
1.46	+/-0.03	1.455	✓			
0.050	+/-0.010	.050	✓			
3.440	+/-0.010	3.440	✓			
4.968	+/-0.010	4.969	✓			
Ø0.875	+0.010/-0.001	.875	✓			
0.332	+0.020/-0.010	.338	✓			
Ø0.750	+/-0.010	.750	✓			
6.49	+/-0.030	6.490	✓			
0.691	+/-0.010	.689	✓			

DART AEROSPACE LTD		Work Order: 178 116
Description: Fitting		Part Number: D4294-1
Inspection Dwg: D4294 Rev: C		Page 2 of 2

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.64	+/-0.030	.639	✓		SLIO	Vern
Ø0.201	+0.005/-0.001	.203	✓		↓	
CSK Ø0.320 x 100°	+/-0.010	.322	✓			
0.764	+/-0.010	.764	✓			
Ø0.381	+0.000/-0.001	.380	✓			
1.405	+/-0.010	1.404	✓			
1.125	+/-0.010	1.125	✓			

Measured by: 20 9-89	Audited by: <i>[Signature]</i>	Preliminary Approval:
Date: 18-06-17	Date: 18/06/20	Date:

Rev	Date	Change	Revised by	Approved
A	14.09.08	New Issue	KJ	<i>[Signature]</i>